REMARKS

Claims 1-14 are pending.

Claim Rejection – 35 USC § 103

Claims 1-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gelernt (US Patent No. 6,369,398) in view of Kleinschmidt (US Patent No. 6,160,832) and further in view of Makinouchi (US Patent No. 6,490,025). Applicant respectfully traverses this rejection for at least the following reasons.

Claim 1 recites a lithographic projection apparatus comprising, *inter-alia*, an acoustic sensor constructed and arranged to detect sounds caused by the passage of pulses of radiation of the projection beam.

Claim 13 recites an integrated circuit device manufacturing method comprising, *inter-alia*, detecting one of: sounds caused by the passage of pulses of radiation of said projection beam; vibrations in an object on which said projection beam is incident, and sounds emitted by an object on which said projection beam is incident.

By detecting sounds caused by the passage of pulses of radiation, a direct and in situ measurement of the projection beam intensity and/or changes of the projection beam intensity at, for example, the substrate level is determined. This allows, for example, to achieve accurate dose control of radiation reaching the substrate.

The Office Action concedes that Gelernt '398 does not disclose, teach or suggest the use of an acoustic sensor to detect sounds caused by the passage of pulses of radiation of the projection beam.

Kleinschmidt et al. merely discloses a wavelength calibration system which is used for determining the absolute wavelength of an excimer laser or a molecular fluorine laser. The wavelength calibration system of Kleinschmidt et al. uses preferably a galvatron containing an element that photo-absorbs around the wavelength of the laser or a microphone for acoustic detection of the laser for wavelength calibration. Therefore, Kleinschmidt et al. is directed to a completely different field of endeavor and solves a completely different problem than the present application. Indeed, as stated above, Kleinschmidt et al. simply uses a microphone for wavelength calibration of a laser. Kleinschmidt et al. does not disclose, teach or suggest anywhere using a microphone to detect sounds caused by the passage of a projection beam in a lithographic apparatus.

There is no suggestion in either Gelernt or Kleinschmidt that the lithographic exposure system of Gelernt can be modified to use an acoustic detection device in accordance with Kleinschmidt et al. Furthermore, one of ordinary skill in the art would not have been motivated to use a microphone as disclosed in Kleinschmidt, i.e., merely for wavelength calibration, in the lithographic apparatus of Gelernt to detect radiation of the projection beam.

Per MPEP 2143.01, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).*

Consequently, Applicant submits that the Office Action failed to establish a *prima facie* case of obviousness.

With regard to claim 5, the Office Action concedes that Gelernt in view of Kleinschmidt et al. does not disclose the use of a vibration sensor mechanically coupled to an object on which the projection beam is incident. The Office Action relies on Makinouchi et al. and contends that Makinouchi et al. discloses an exposure apparatus for projecting a patterned image on a substrate including a vibration sensor for measuring vibration of a body including a projecting optical system and thus it would have been obvious to one of ordinary skill in the art to modify the lithographic apparatus of Gelernt in view of Kleinschmidt to use the vibration detection apparatus of Makinouchi et al. Applicant respectfully disagrees.

Claim 5 depends from claim 1. Therefore, for at least the reasons presented above with regard to claim 1, Applicant respectfully submits that claim 5 is patentable over Gelernt in view of Kleinschmidt.

Makinouchi et al. does not overcome the deficiencies noted above in Gelernt and Kleinschmidt. In addition, Makinouchi et al. merely discloses using a vibration sensor for detecting vibrations (accelerations) of a body due to movement of wafer and mask stages. Makinouchi does not disclose, teach or suggest to measure acoustic vibrations caused by the passage of radiation pulses.

Consequently, for at least the above reasons, Applicant submits that none of Gelernt, Kleinschmidt et al. and Makinouchi et al., taken alone or in combination, disclose, teach or suggest the subject matter recited in claim 5.

Therefore, Applicant respectfully submits that claims 1 and 13, and claims 2-12 and 14, which are dependent from either claim 1 or claim 13, are patentable. Thus, Applicant respectfully requests that the rejection of claims 1-14 under § 103(a) be withdrawn.

CONCLUSION

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

PILLSBURY WINTHROP LLP

By: _____

Robert C. Perez
Reg. No.: 39,328
Tel. No.: (703) 905-2159
Fax No.: (703) 905-2500

RCP/KG

00909
P.O. BOX 10500
McLean, VA 22102
(703) 905-2000